SEDGWICK'S KANGAROO PAWS RE-IDENTIFIED

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Many years ago I wrote a note about the Kangaroo Paw, *Anigozanthos manglesii*, concluding that its flowers are structurally adapted for pollination by birds, insofar as access to its nectar and pollen by insects is made as difficult as possible.

I further pointed out that because of the peculiar structure of the flowers, and the distance separating the nectaries from the anthers, small bird pollinators do not receive and transport pollen on their forehead (as in most bird flowers), but on the back, and speculated that this would be of advantage to the plants, as it could not be easily wiped off when the birds visited different species of flowers (Mees 1967).

Two authors paid me the compliment of commenting on my note: Jenkins (1968) and Sedgwick (1969). Jenkins's remarks were confined to *A. manglesii*, the same species discussed by me, but Sedgwick extracted from his notebooks observations of birds visiting mainly Green Kangaroo Paws *A. viridis*, with single records of *A. manglesii* (Perth) and a "reddish kangaroo paw, *A. flavida*" (Yallingup). The inclusion of *A. viridis* into the discussion would seem perfectly legitimate, as its flowers agree structurally with those of *A. manglesii*: the perianth tube is split almost to its base, and terminally flattened.

Sedgwick made his observations on what he calls *A. viridis* in the following localities: Nornalup, Augusta, Pemberton, Quinninup, Lake Muir-Rocky Gully. The dates of his observations range from 26 December to 3 February.

More about the distribution and flowering season of the various species of kangaroo paw is now known than it was thirty years ago when Sedgwick wrote his paper, and I want to stress the facts that (1) *A. viridis* flowers in spring, from August to November, not in the summer, and (2) several of the localities listed by Sedgwick are outside the known range of *A. viridis* (cf. Hopper 1993: 131). It is therefore evident that Sedgwick's *A. viridis* cannot be that species. The question of which species he confused it with, is fortunately easily answered: it is *A. flavidus*. This is the only member of the genus flowering in summer (in the period of Sedgwick's observations), and it is in the southern forest region by far the most abundant and most conspicuous of the kangaroo paws, growing in clumps, with inflorescences rising to over three metres (320cm the tallest I have personally measured). The objection might be made that

Sedgwick knew *A. flavidus*, as evidenced by his observation at Yallingup, quoted above. However in the region Yallingup/Cape Naturaliste a red variety of *A. flavidus* occurs, which superficially looks quite different from the typical form. Evidently, Sedgwick believed that to be the true *A. flavidus* and it explains why he misidentified the typical *A. flavidus*.

One might wonder (as I have done) whether the matter is of sufficient importance to justify a published correction so many years later. I think it is. The starting point of the discussion was the method of pollination. But the flowers of *A. flavidus* are structurally quite different from those of *A. manglesii* and *A. viridis*. Instead of having an open, flattened perianth, they have a closed, tubular perianth of *ca.* 30 mm in length. The structure of the flowers is such, that pollen can only be carried on the forehead by visiting birds, quite unlike *A. manglesii*. Although the flowers are designed for bird-pollination, by honeyeaters with long and slender bills, access by insect pollinators is possible and should be successful.

According to Sedgwick, "*A. viridis*", but *A. flavidus*, is visited by at least four bird species; which he lists: Western Spinebill *Acanthorhynchus superciliosus*, Red Wattlebird *Anthochaera carunculata*, White-naped Honeyeater *Melithreptus lunatus* and New Holland Honeyeater *Meliornis novae-hollandiae* (now *Phylidonyris novaehollandiae*). On the family property "The Colonel's", Callcup, near the mouth of the Warren River, I have seen the following species as regular visitors to the flowers: *Phylidonyris novaehollandiae*, *Acanthorhynchus superciliosus*, Brown Honeycreeper *Lichmera indistincta* and Grey-breasted Silvereye *Zosterops lateralis gouldi*. It is worth mentioning that although both species of wattlebird are common at Callcup, at least periodically, I have yet to see a wattlebird on *A. flavidus*. I may have been unlucky, but it shows that wattlebirds cannot be very frequent visitors to the flowers here.

The honeyeaters insert their bills in the open end of the flower-tube, without damaging the flowers, but the short-billed Silvereye is evidently unable to do so. Silvereyes invariably bite a hole in about the middle of the dorsal aspect of the perianth, pull this out to a slit, and reach for the nectar through the gap thus made, contributing nothing to the pollination of the flower.

The holes made by the Silvereye are eagerly sought by honeybees *Apis mellifera*. These insects fly from flower to flower, clearly going for the middle of the perianth, where the hole or slit may be expected. If there happens to be no hole, they fly on. Apparently the bees are unable to bite holes themselves, at least I never saw them attempt it. The small native bees are able to enter the tubes in the regular fashion. A few under-sized honeybees are also just able to squeeze into the open end of the tube and feed in the regular way. On the flowers a

third group of honeybees may be seen, collecting pollen. These pollen-collectors do not go for nectar and vice versa.

Sedgwick's record of *Melithreptus lunatus* visiting the flowers is interesting, for this is a short-billed species and one wonders whether it can reach the nectar through the tube, or has to bite its way in like a Silvereye.

Sedgwick's paper has been quoted several times in the literature, under the assumption that it concerned *A. viridis* (e.g. Parker 1977; Storr 1991, without reference, but clearly based on Sedgwick). It has also found its way into the Handbook (Higgins *et al.* 2001) both directly and through Parker. When reading the manuscript of Abbott (1999), I mentioned my misgivings about Sedgwick's "*A. viridis*" to that author, but may have not completely convinced him, as he (Abbott 1999: 34) changed the reference to Sedgwick to "*A. viridis* (? = *flavidus*)", showing some doubt. Not surprisingly, the experienced authors of the pollination book noted Sedgwick's error and corrected it, listing his observations of "*A. viridis*" under *A. flavidus* (Brown *et al.* 1997: 116), but without any explanation. True there is a remark in the introduction, stating that when names used in the older literature have changed, the modern nomenclature has been substituted, but this does not cover Sedgwick's case, which is not one of a change in nomenclature, but of misidentification. Users of the work, most of whom will not be intimately familiar with the genus *Anigozanthos*, wishing to verify the reference to Sedgwick, given under *A. flavidus*, will be confused when they find only a single record of *A. flavidus* (from Yallingup), and might assume an error in the "Database". Therefore I believe that the correct identification by Brown *et al.* (1997) increases rather than decreases the need for clarification.

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